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## Didactics and non-formal/informal relations. Online communication and knowledge processes

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### Abstract

The use of technologies in didactics raises several issues that deserve to be further examined both to support teachers' reflections about the effects of daily use of the Internet on students of, and to rethink teaching methods. The didactical triangle represented by teaching, learning and knowledge and the concept of the learning contract are revisited by the social nets that develop on the web when students and teachers interact with resources created by the whole community and not only by the teacher. Both the dynamics between the participants and the results of the knowledge construction processes are changing and create a "hyperbolic space" characterised by relational circles of different range.

*Keywords:* web 2.0; enactive approach; teacher/student relations; futile and useful; friend.

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### 1. Introduction

If the didactical approaches of the last few decades, whether behaviourist, cognitivist, or constructivist, have highlighted the students' learning trajectory, approaches that are more focused on the didactical situation (Brousseau, 1998; Mialaret, 2011), and on enactive didactics (Begg, 2002; Li, Clark B. & Winchester, 2010) highlight the relation that affects the transformation of the teachers/students system and requires the analysis of two perspectives: that of the communication sciences and that of the education sciences (Rossi, 2009). The presence of online spaces, formal and informal, along with face-to-face activities, modifies the relations teaching-learning, teaching-contents and learning-contents and determines the shift from the didactical triangle to an "hyperbolic space" (Agostinelli & Campillo, 2011) in which relational circles are present, wider or narrower circles that contain groups of students, connected with different levels of bonds, and groups of teachers. In such spaces the subjects that one relies on change and they can be represented not only by teachers but also by students, in the same way that the role of the teacher who enters the "game" changes. The teacher is not a referee in the student learning process but he himself is affected by changes during the interaction. Another relevant aspect, not always properly regarded, is the study of the influence of friendship relations on the teaching/learning process.

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In such a perspective the analysis of the global system and the evolution of the learning community are essential to understand how learning develops.

The elements previously identified are connected to a criticism often directed towards the university didactics: the education that a university provides is not adequate. The fragmentation of university courses requires compulsory study and a frenetic pace, and does not always guarantee sufficient development in a subject, also because of the different learning styles that characterize the today university students. The classical model implied a diachronic process with a lecture by the teacher followed by individual study by the student, study that let him/her gain deeper knowledge of the topic and make it significant for the student himself/herself.

If the learning process can be viewed as a re-mapping of knowledge, owned by the student, activated by the external inputs, the didactical reflection identifies the processes that today activate such a mapping, or in other words how the student assigns a personal meaning (Wenger, 1998) to information and meaning and thus how information achieves significance for him/her.

The research hypothesis is that the attribution of meaning is now more of a social process and that the exchanges among peers and between peers and the teacher acquire a central role in such a process. The learning path is synchronic from the beginning, not diachronic. In such a vein the web 2.0 tools can have a relevant role. We can consider two typologies of usage of web 2.0. On one hand we put the environments that students live in freely and in which they share their reflections and impressions on the university process. We can discuss informal contexts. On the other hand, there are environments proposed by the teacher and in which he/she and also his/her students live. Those environments enable people to have roles and dynamics happen that are different from the ones that can be produced in the classroom. In such environments students can exchange their respective interpretations and representations and they can formulate knowledge proposed by the teacher from their perspective. In such cases we speak about non-formal contexts.

The present paper analyses two experiences, the first realised at the University of Marseille (France), the second at the University of Macerata (Italy). In total 700 students from both universities were involved in the study to understand if and how the presence of informal spaces (Facebook and similar sites used autonomously by students) and of non-formal spaces (weblog and wiki proposed and used also by the teacher) modify the relations present in the group and how such presence redefines the roles of the various actors and the relations and learning. Specifically it analysed:

- the presence of relationship circles, stronger or less strong;
- the presence of students who have a role as a leader;
- the changes in the teacher's role;
- the development of community;
- the incidence that activities, external to the presence, have on the typology and quality of learning.

## **2. Role of the relation out institution**

The more we try to integrate or to use ICT in trainings, the more it proved itself insufficient to build a relation that establishes explicitly or implicitly the role of each user (teacher and student) in the construction of the knowledge.

The online relations are based on the identification of membership of a group, which ensures the exploration of knowledge resulting from the explicit and continuous rules registered in the time of pedagogy. Here the relation is recognised "by body", which means the relation is proposed like a way of acting. Everyone believes that there is nothing to know or to understand in order to belong to the network. It is by forming a unit with a social group that we are able to gain the dispositions that make it possible to evolve with ease, in an adjusted way (Bourdieu, 1966). The interaction does not derive from a mode of communication but of a membership.

## 2.1 *The successes of the interaction*

In the University of Marseille there are 20281 students. In total, 2644 are present on Facebook in 28 different groups (13% of our students). In France, there are 9619560 users of Facebook (penetration rate: 16%) with: 20% aged 13–17; 43% aged 18–25; and 23% are aged 26–34. In total, 86% of Facebook users are of school age. This makes this tool a very important way of giving information to our students. Facebook also seems particularly well adapted to know new colleagues for work. However, the utilisation factor of a network of friends should depend on the relationship between the quality of the resources and the cognitive or relational cost that the student implements on such operation.

Analysis of the Nielsen Online Survey (2009) reveals that 90% of the people that were questioned have confidence in people they know and that 70% of them agree with the opinions stated online. In the same survey, only 14% of the “Net surfers” trust the advertisements whereas 78% believe the recommendations of other users. In other words, we can ask ourselves to what extent students give credibility to institutional messages or teaching announcements. With a little humour, we can conjecture on the level of confidence inspired by online courses written by a teacher (or an institution) in contrast to knowledge gained by discussion between peers.

These figures obviously raise a practical problem: how can institutional teaching use the “consumer generated media” or the “user generated content” founded on “buzz marketing” with people who do not know each other and have the same practices but not the same objectives? This idea raises the question of the common idea of a levelling pedagogy in its effects with which, to support the success of the pupils within a community, it is advisable to have the same objectives, to adopt the same exemplary practices and to share the same resources.

Social networks and the digital culture seems to rebalance the social inequalities. They make it possible to develop three types of relations:

Personalised relation: face to face (chat, videochat) and of the direct relationship where people know each other and carry out exchanges on a trust relationship;

Semi-personalised relation: by the installation of situations and resources in order to improve the effectiveness of the teaching approach;

Collective relation: information is distributed to a number of unidentified students to increase interest in a topic.

## 2.2 *Between futile and useful*

Today, three types of social networks seem to have become established (Chappaz, online 5/23/2010):

The futile (Facebook) with which one shares one’s life, photography, and moods;

The word of mouth (Twitter) with which one posts what one likes or dislikes, the articles that interested us and on which we can possibly react;

Information of opinion (blogs and forums) in which people affirm their opinions through our information (often original if we are experts or impassioned), our opinions, our analyses, and our debates on the blog.

If one categorises these three types of network under the qualifier of ‘futile’ to differentiate them from ‘useful’ represented by the unit from the digital services used by the Net surfers, we must note that the futile takes it from now on, on the useful (Morgan, 2009). In other words, the relation overrides the functional, even the rational.

Consequently, within the framework of the relation, all content that seems futile but allows us to found relational functions in the group is useful. The relational function is defined according to the proper criteria of appreciation of the Net surfer. This definition has the advantage to underline that quality subjective information affects the decision to undertake or not a relation. That is also a question of the quality of exchanging and sharing such as it is perceived by the Net surfer himself or herself, and not such as it is allowed by the tools placed at their disposal. Consequently, all content, allowing a quality of digital relation higher than the threshold considered as the necessary minimum to start a relation in a non digital life, would it be useful or futile?

However, we see that such a level of relation is only illusory because social networks are made up of different Net surfers with their own history and values. In addition, the legitimacy of the appreciation of the quality of a relation by those that are not group members is eminently debatable.

### 2.3 *Is a friend a peer?*

The concept of “friend” has not received much study. It would be more concerned with virtues to crossing into ethical, anthropological, political concerns (Wolff, 2000). However, we have to remember that friendship has two aspects: the friendship contains the representation and the attentive consideration of the equality between men,

Consequently, the idea that by forcing others to behave well, we are forced to behave well (Kant, 1996); friends are those one can rely on when necessary (Wolff, 2000). Therefore it is strongly related to the ‘useful’. Despite little research on the role of friendship, it is recognised that friends, more particularly in the social context of school, constitute an important aspect of the social adjustment of students. This aspect of the didactic relation receives a privileged context for the training of social skills. However, if it is difficult to discriminate between good friends and best friends we can know if students have friends, who they are, and the level of reciprocity, an indicator of the quality of the relation (Yugar & Shapiro, 2001).

This vision of social e-learning transforms the teaching structure of training. From sharing the knowledge, we pass to a time-sharing. The necessary time to notify the user’s presence: to send messages, to comment on photos, reflections... They go online to socialise with their friends (Boyd, 2007). They leave explicit and implicit significant codes. These codes contribute largely so that a person integrates or does not, then progresses or not in a network. These vectors of the relational codes are not easy to understand when we don’t have the local culture of the different networks. On the other hand, it seems easier to locate them while knowing that the same code can carry different meanings. However, the online relation develops apart from the subjectivity of choice that usually characterises the friendly relation (I, us, ours...). Starting from a list of relations suggested by a first Net surfer, a second Net surfer, whose choice is dictated by a seldom explicit interest to build a relation with other Net surfers in the world, states the names of his friends with whom they maintain relations (friendly or intellectual). The Net surfers who are quoted several times constitute a list of friends, who are all linked, at least by someone interposed, and form an implicit network.

Tutoring or peers aiding each other is well-known in pedagogy, but until now, it has never been a topic of research, research, neither in a formal nor informal context. Also, the methods and effects suitable for this kind of assistance are unknown. For example, can social networks really help you to find employment? Is the relation enough to find employment, to find information, and to gain knowledge? Generally, regarding teaching skills, interaction between peers is used in workshops for developing a common task. The activity has an objective, to use the skills of the peers, which requires students to clarify with sufficient precision any difficulties. Exchanges make it possible to formulate knowledge of each other with various strategies. They also make it possible to confront proposals and arguments. Would the social networks act like a huge workshop?

To observe the relations built by friendship, we have taken into account four dimensions.

The first is the reciprocity of communication between individuals. In order to call someone a friend it should be the result of a relation where a friendship has been built on common reference marks, where common values have emerged and shared concerns, even if we do not always have the same approaches and the same answers. A friendship is built on gratitude for each other, respecting differences and appreciating the intellectual wealth that is offered and share. The base of this reciprocity refers to Hymes (1982) for which, the daily linguistic practices testify in the way in which they build the social relations.

The second dimension is related to the characteristics of the people, with the similarities in the profile of the individuals which allow to recognise each other. This one is always a certain kind of social order (Douglas, 1986) in which the individual becomes a member of a network because he/she is recognised there.

The third refers to the quality of relations, expressed by criteria such as the operating rules, the practices that make it possible to describe the way in which people associate particular modes of dialogue linked to the

improvement of the regard of each one and the management of the tensions. The rules (or uses) shared are permanently rebuilt by facts, gestures and exchanges (Goffman, 1963). In social networks, the list of friends goes beyond an inventory of simple strong links (those that one usually indicates by friendly links). It becomes a functionality that makes it possible for the members of the network to constitute what they think within their group (their band of friends), i.e. it approaches those that they imagine to belong to the same world as them (Boyd, 2007).

The fourth indicates signs of membership that mark the consistency of the relation and an effective attitude of fidelity. Signs of membership are most important to federate a group if this is dispersed, as is the case for the abstract group of the individuals “in”, or “connected”, whose tattooing constitutes a rallying symbol in a symbolic system (Milot, 1992) or “groups of those who...” on Facebook.

This consistency can be found in three major characteristics:

- the temporality or durable character of the exchanges;
- the foreseeability which in any situation the members of a given culture must offer (Goodenough, 1957);
- emblems or characteristics of a specific symbolic system.

### **3. The role of participation and reification in the university didactics – the experience realised in the course of didactics at the University of Macerata**

As discussed in the introduction, the enactive approach emphasises that a system transforms thanks to the interaction among different subjects and thanks to the mind-body-artefact-world continuum. The co-emergence (that is, the transformation of the system) is the product of the structural connection among different subjects and different practices. To investigate such an approach requires the study of the co-evolution of the system during the time, as the teacher/students dynamics is modified, and how the behaviours of both the teacher and students modify. The investigation aimed to discover if and how the system changed during the study and if and how the learning community was set up.

The study dealt with the “Didactics” course run in the first year of the course in Education for Primary teachers at University of Macerata. The course, followed by about 200 students, has been organised as a blended course. Face-to-face classes of four hours a week for three months with the teacher’s intention that students should actively participate in classes. During the classes the teacher provided open topics that students could discuss and they were expected to ask questions to add depth to the topic. In addition, an online environment was constituted by a blog and a wiki to point out and reify what had been covered in the classroom, to discuss the issues raised during classes and the topics they were more interested in or that they found confusing.

The research has used the following materials, gathered during the teaching process: the recordings of the classes, the texts in the weblog and in the wiki, a questionnaire proposed at the end of the course to collect reflections by students. The questionnaire was composed of open and closed questions (a document to be filled in and that was completed by about 150 students). The research aimed to identify if during the development of the course there was a change in the system. The participation has been taken as a main indicator both for the co-emergence of a community and as a tool itself for the co-emergence.

To analyse participation in the classroom a timeline has been created from the recordings. That is, for each lesson the line has been divided into time dedicated by the teacher to a monologue and the time dedicated to discussion (figure 1). The first lessons are characterised by long monologues by the teacher, the questions asked are few and short replies are given by students. Shyness and insecurity were present. After the fifth lesson it is possible to highlight that the questions received more participation, but also that the students themselves often ask questions during the class.

The presence and act of posting in the weblog were not linear and regular during the whole path. In the initial phase the comments were unsure and not numerous. Then the atmosphere changed, which was due to various aspects. The opportunity to participate or, better, to feel they were taking part in a community was surely relevant, but, it also needs to be pointed out:

- There was confidence to express freely since there was no assessment, but the questions were validated as inputs also for the face-to-face classes;
- The attention of the teacher that expressed in a assiduous presence (visiting the weblog twice a week in the first month) and in the relaunch of the issues posed by the students;
- The redefinition of the issues and debate topics raised by the teacher. If at the beginning students were supposed to ask questions, afterwards the task required to relate about the students' experience, in the same way the theoretical reflections consisted in connecting the experiences and personal narrations to the reference theories.

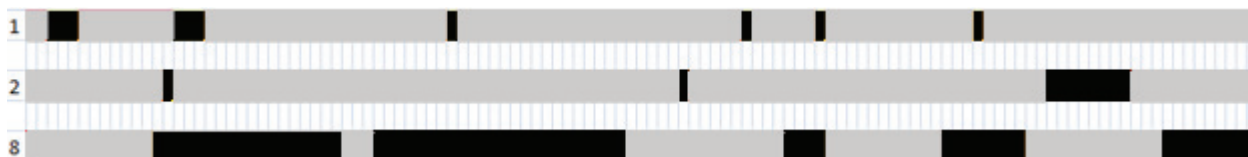


Figure 1. Lessons

At the end of the three months the weblog attained 22000 visits and more than 300 comments by students. On some days there were more than a thousand visits were. That is, many students visited the weblog more than once a day.

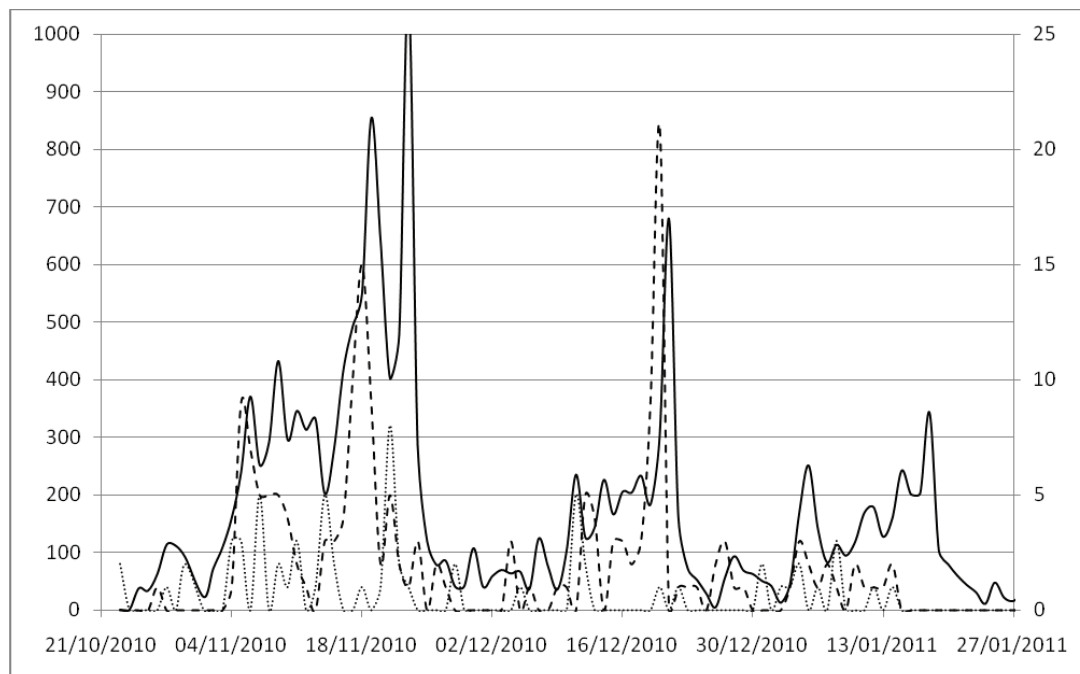
Analysis of the graph in figure 2 shows that after an initial period, lasting 15 days, the community began participating in the weblog and visited it with a pluri-daily frequency. There was afterwards a period of stabilisation that coincides with a holiday week followed by regular activity until the end of the course. During that phase, from 7/12/2010 to 22/12/2011 the ratio between writings and reading increased if compared with the period from 10/10/2010 to 5/11/2010. In other terms the presence changes, the writings increase and the visits are more regular.

Also, the role of the teacher changes. If in the first period his presence is more frequent there is a process of gradual reduction and the students' posts replying to peers are more numerous. Such observations show a change in the community. The visits in the weblog continue even after completion of the course and the posts by the teacher ended and this means that students found the published materials useful for their study.

Figure 2. Weblog statistics. Solid line: visits; broken line: students' comments; dotted line: teacher's posts.

The study, made at the end of the course using a questionnaire, shows that the face-to-face activity and the online activity contributed to the change of behaviours and to the creation of a community even if not in the same proportions for all students. The presence of different activities and the synergy among them was effective. For example, in relation to a request for participation in class, some students have underlined the effectiveness of the teacher's provocations that stimulated a reflexive attitude, but in the face-to-face class it was more difficult to intervene in front of a large audience. Instead, participating online was less problematic. But in the face-to-face environment it was easier to agree on issues raised online or propose advised and elaborated contributions, something not possible when writing in the weblog.





The study, in relation to the weblog, shows three key concepts: participation and exchange, clarification of doubts, the attention on the students' perspectives. In other words, the positive role the weblog had was connected, according to the majority of students, to the opportunity to exchange ideas, know the problems raised by other students, and discuss topics according to the difficulties and viewpoints of students themselves. From the students' replies it's clear that the participation develops from the debate on the topics felt by the community: it could be said that this is an obvious point but we believe there is still validity in stating it.

The following statements were taken from the students' answers in the questionnaire.

"It let me share and reflect on what had been learnt."

"Very useful, because through the exchange with the doubts of others I have clarified mine."

"For many reasons, I could find my mistakes and correct them."

"Very effective because I could compare my replies with the ones in the blog."

"Effective because the doubts of some students were the same I had."

"Effective, because starting from the doubts of the colleagues I got some clarifications and could deepen the study."

A last observation is that the investigation shows that visits on the weblogs and studying began almost at the beginning of the course, whereas it's common for students of this course to begin studying after the course ends and before the exam. The request to participate in the classes and in the weblog imposed reading and studying of the proposed materials from the first lesson, whereas simply listening during the face-to-face lessons postpones studying to the period of exam preparation.

By the middle of the course it was already possible to perceive a different atmosphere in classroom. We could use the term "community of practice", even if not appropriate, to indicate how from a group of students whose members initially didn't know each other they developed into a community that share knowledge, discuss main topics, identify leaders, that is those reference students that participated in the weblog more often and played a guiding role for the others.

#### 4. Conclusions

In conclusion, we believe that the digital relation is developed by the use of environments directed towards the creation of the social links, either because they support meetings, or because they reinforce existing social networks and this facilitates their exchanges. In the centre of these environments, the concept of friend plays a crucial role between the futile one and the useful one. Relations of the members make the activity of the social network visible and, ultimately, the social network itself. The relation became a utility, produced and consumed collectively.

Can the teacher use this heterogeneous didactic network to propose situations of training?

How can it ensure or support the transitions between platforms that often mean that the two didactic systems cohabit during a certain time?

To give and share on the social networks, it is also necessary to amalgamate time. Didactic time and personal time no longer constitute separate spheres.

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